

CLAIMS

1. A contact lens forming die comprising a female die having a concave forming face and a male die having a convex forming face, which are mated with each other to create a forming cavity between the opposed concave forming face and convex forming face, the forming cavity adapted to be filled with polymerizable monomer which is polymerized to form a contact lens, the contact lens forming die characterized in that,

by means of mating the female die and the male die with each other, annular flat mutual contact areas extending over a width of 0.01 mm or greater in a direction orthogonal to the die mating direction are formed by abutting the female and male dies at an outer peripheral side of the concave forming face and the convex forming face,

at an outer peripheral side of the mutual contact areas an auxiliary cavity of substantially closed structure to be filled with the polymerizable monomer during molding is formed by the female and male dies positioned spaced apart in opposition to each other in a die mating direction; and

a tubular fitted part is formed by fitting together of the female and male dies at an outer peripheral side of the auxiliary cavity by means of tubular surfaces extending in the die mating direction.

2. A contact lens forming die according to claim 1, wherein a capacity of the auxiliary cavity is 1 -250% of a capacity of the forming cavity.

3. A contact lens forming die according to claim 1 or 2, wherein by means of mating the female die and the male die with each other, the male and female dies are positioned spaced apart from each other by an outer peripheral side of the tubular fitted portion, forming an annular monomer reservoir that contains an excess polymerizable monomer during molding.

4. A contact lens forming die according to any one of claims 1-3, wherein in the female die, a face forming the auxiliary cavity is a smooth surface devoid of bumps in an entirety thereof.

5 5. A contact lens forming die according to any of claims 1-4, wherein the female die is formed with an annular flat surface extending in a direction generally orthogonal to the die mating direction towards an outer peripheral side from an peripheral edge portion of the concave forming face, the annular flat surface of the female die being brought into abutment
10 at an inner peripheral portion thereof with the male die so as to form the mutual contact areas, and being positioned at an outer peripheral portion thereof in opposition to the male die spaced apart therefrom in the die mating direction so as to form the auxiliary cavity.

15 6. A contact lens forming die according to claim 5, wherein the male die is formed with an annular flat surface extending in a direction generally orthogonal to the die mating direction towards an outer peripheral side from an peripheral edge portion of the convex forming face, the annular flat surface of the male die being brought into abutment with the annular
20 flat surface of the female die so as to form the mutual contact areas, and a sloping face that extends towards the outer peripheral side from an peripheral edge portion of the annular flat surface of the male die and that moving towards the outer peripheral side becomes gradually further apart in the die mating direction from the annular flat surface of the female die,
25 the sloping face being positioned in opposition to the annular flat surface of the female die so as to form the auxiliary cavity, and having a tapered face that slopes at a predetermined angle in the die mating direction and extends linearly towards the outer peripheral side, or a bowed convex face that projects out to the auxiliary cavity side and extends towards the outer
30 peripheral side.

7. A contact lens forming die according to any one of claims 1-6, wherein the tubular surface making up the tubular fitting portion in the female die is formed projecting from a peripheral edge side of an auxiliary cavity forming face in the die mating direction of the female die with the male die.

8. A contact lens forming die according to any one of claims 1-7, wherein a gap for expelling excess polymerizable monomer in the auxiliary cavity to an outside during mating of the male and female dies is formed in the tubular fitting portion.

9 A method for manufacturing a contact lens characterized in that when manufacturing a contact lens using the contact lens forming die pertaining to any one of claims 1-8, characterized in that with the forming cavity and the auxiliary cavity formed between the mating faces of the female die and the male die being filled with the polymerizable monomer, the polymerizable monomer filling the forming cavity and the auxiliary cavity is subjected to a polymerization process.

10. A method for manufacturing a contact lens according to claim 9, wherein the mating direction of the male and female dies is generally vertical, with the male die being mated relative to the female die from above in the vertical direction.

11. A method for manufacturing a contact lens according to claim 9 or 10, wherein at least one die selected from the male die and the female die is a forming die of synthetic resin, and with the male and/or female die of synthetic resin in a softened state at high temperature, the polymerizable monomer is supplied between the opposed face of the male and female dies,

while mating the male and female dies so that the forming cavity and the auxiliary cavity are filled with the polymerizable monomer.

12. A method for manufacturing a contact lens according to claim 11
5 wherein at least one die selected from the male die and the female die is a forming die of synthetic resin, with the male and/or female die of synthetic resin being mated used in a high temperature state prior to completely cooling after molding thereof.